GRAIN

ELEVATOR OPERATION AND MAINTENANCE

AUGUST · 1938

August Thoughts of a Super

"Hm-m-m, too hot this Sunday afternoon to do much else besides relax in this cool chair. Really ought to take the family for a drive but, pshaw, they understand. They know how hard we are plugging along day in and out at the Elevator. Golly, it's swell to sit here without a care in the World! No sir, not a thought of business on my mind.

"There goes Ed down the street in his new car. Hm-m-m, I wonder how he's making out with that big shipment of corn at his Elevator. Let's see, it was Friday he told me he had two hundred empties running. Wonder if he got 'em . . . . By George, I wonder if MY empties are in the yard! If I don't have 'em for first thing in the morning, I'm out of luck! Say . . . .

(he springs from his chair and calls to his family)

"Mother! Hey, Bud and Sis! What say we go for a ride. It's too hot to hang around the house. We'll drive up the bluffs along the river . . . . and on the way back I think I'll stop in a moment at the Elevator . . . .

I Propose

A PERMANENT VACATION FOR:

Accidents
Explosions
Worn out equipment
Drouth years
Political meddling
Faulty sampling
Lazy workmen
Off grade grain
Delinquent members
Weevil
Deterioration
Sickly Chapters

Editorial

By DEAN M. CLARK

GRAIN

BOARD OF TRADE BUILDING
CHICAGO, ILLINOIS
TELEPHONE WABash 3111-2

A forum for
OPERATIVE
and
MECHANICAL
PROBLEMS
in
TERMINAL
ELEVATORS

PUBLISHED
MONTHLY
on the tenth
$1 PER YEAR

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FREDERICK S. OLIVER - New York
230 Fifth Avenue — Ashland 4-1170-1171

VACATION DAZE

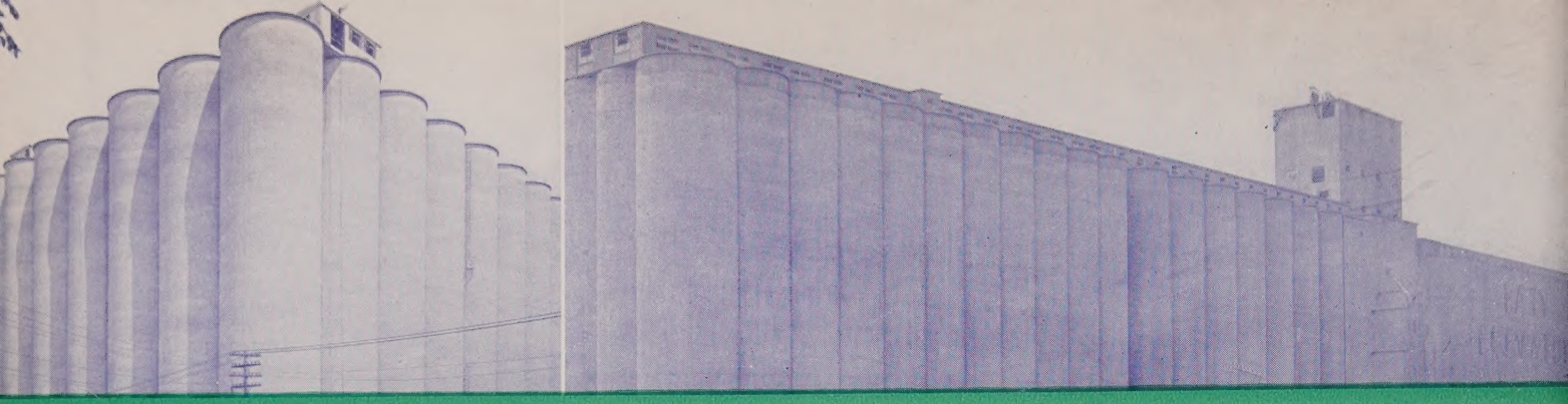
Mobilization of the Army of Vacationists is in full flower. Brigades of Easterners troop to the West, passing, en route, similar hordes of Westerners moving East. Battalions of Canadians swoop down on the States by air, by water and by rail, filtering through a mass movement of Americans sweeping up to Canada.

Gaily flutter the colorful pennants of the jubliant Army as they dance onward to the zestful cadence of swing bands. The whole land seems to be embarked upon a joyful holiday.

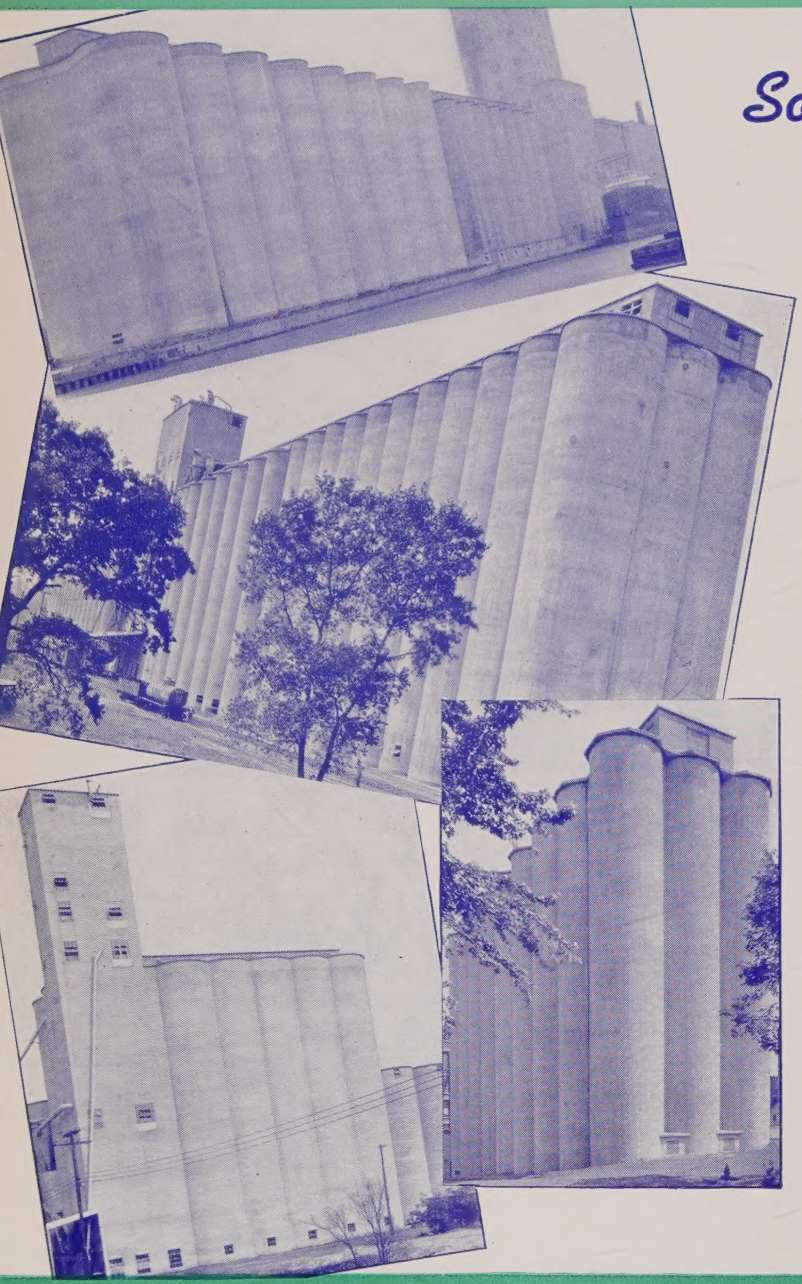
But is it?

Just cast your eyes from your streamlined coach to the endless strings of grain cars moving toward the terminal markets. Gaze from the deck of your excursion steamer at the sturdy parade of corn cargoes furrowing the blue of the Great Lakes. Glance down from your seat in a soaring transport plane and witness the feverish activity of the terminal elevators.

August means no vacation to the grainman, but it does mean just as much happiness and joy to him as it does to the vacationist. For no grainman worth his dust ever felt sad and blue because of a rush of business!



1 GRAIN ELEVATOR = $?



So Much Money Buys Only

- SO MUCH GRAIN or
- SO MUCH ELEVATOR

The Rules Are Just The Same

★

The Bargain-Counter Buyer
Gets NO MORE Than He Pays For

★

An Elevator Can Be

A Definite Asset or
A Distinct Liability

- "STEWART-BUILT" PLANTS ARE "MONEY-MAKERS" FOR THEIR OWNERS

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Vice President

Slaves of the Flood

after STUART CHASE

★

• Unless one's plant has been in the path of a past flood the title of this article may seem a trifle removed . . . and yet is it?

The further one delves into this masterful presentation the greater is the realization that the future of the grain business hinges on the successful treatment of this distant problem.

The plight of the producer is of importance, as is improving nutritional factors and increasing the consumption of our producer's products both here and abroad. That goal reached and the grain business will top all commerce.

★

While the California floods are still fresh in our minds, we cannot forget that as recently as January, 1937, we suffered the most disastrous deluge in American history. And a year before, in March, 1936, the Ohio went on a mad rampage, paralyzing the industrial life of Pittsburgh, Pa., a city of 700,000.

Does Nature send us these floods as she sends molten lava to the peasants around Vesuvius? Must we bow our heads like the peasants and take what comes? No. Rain cannot be held in the heavens, but it can be held in the soil, as Nature intended, and the terror of flood enormously reduced. When we are prepared to work with Nature, rather than defy her, as in the past, flood crests can be lowered, while our land, ravaged by centuries of misuse, can be restored to balance. It will cost something, but no nobler and more vital task ever faced the American people.

Slaves of the flood we are today, but tomorrow, if we will, we can become its masters.

From high in the sky a great river basin looks like a tree. The "main stem," as it is called, is the trunk, the tributary rivers are the branches, the feeder brooks are the twigs, and little ponds, marshes, swamps are the leaves. The Ohio River basin is such a tree. Yet this tree is really a giant branch jutting at right angles from a still larger tree—the Mississippi. The Ohio pours more water into the Mississippi at Cairo, Ill., than comes down the Mississippi itself. The whole Ohio basin, including the Tennessee and Cumberland Rivers, which empty into it, is as large as Italy, Austria, Hungary, and Belgium combined, 17,000,000 people live in the region, 5,000,000 of them on farms.

When the first white settlers pushed beyond the Alleghenies, tall prairie grasses waved in southern Illinois and western Indiana, but over all the rest of the Ohio basin grew a lordly forest. The prairie grass has gone down before the plow these many years, while less than a third of the forest area remains, nearly all of it second growth. On many hillsides terrible fires have eaten away the soil itself, and nothing grows. The crop lands which have replaced the virgin timber and the native grasses are, in many regions, gullied and eroded, their fertility ebbing.

The carpet which primeval nature flung over the Ohio Valley has been largely replaced by a bare cellar door. Pour a quart of water down a cellar door and note its speed. Then tack a thick piece of carpet on the door and observe the thin trickle which finally emerges from the bottom, and how that trickle runs for a long time. The carpet represents nature's flood control which man has stripped away.

Below Cairo, before pioneer days, Old Man River had a 100,000-year plan for keeping his house in order. A virgin forest covered the shores of the Mississippi at many points, and the flanks of the hills above. He gathered the waters of half a continent from the Rockies to the Great Smokies, and drove them down a relatively narrow channel to the Gulf of Mexico. When the water was high, it leaped over the banks into what is called the "flood plain"—broad basins on each side of the river—thus checking the force of the flood. The surplus then meandered by many side routes to the Delta, below New Orleans. Banks were carved, trees were uprooted here and there, but the damage was not great.

The flood plain was covered with rich soil. When the first settlers arrived, they cut down the trees, plowed the soil, built their farms on the bottom lands. Whole towns were located there. The floods came down, spilled over the banks, and drove the settlers from their homes. Something had to be done.

And now, for 200 years, the farmers, the towns, the states, and the federal government have contested the flood plain with Old Man River. They wanted the rich soil for corn, tobacco, and cotton. He wanted it as a reservoir into which to spill his excess waters.

Men pinned their hopes on levees and channel straightening. The first levee was constructed at New Orleans in 1717. Finally they ran all the way up to Cairo, 1,825 miles of them, averaging 21 feet in height. But did men win the battle for the flood plain? They did not. Time after time, Old Man River drove a million tons of water through a crevice in the wall, and the levee dissolved like a mud pie in a thunderstorm; then he went roaring back to his accustomed playground, while the barns and farmhouses eddied downstream, and the settlers took to the hills. Afterward the levees had to be rebuilt—a foot, three feet, five higher this time, until the next major flood dissolved them.

Meanwhile, over the whole Mississippi basin, trees were being felled. Native grasses were ripped by the plow. Cattle and sheep overgrazed the hillsides and weakened the primeval sod. Silt was streaming into the tributaries, ultimately to clog and raise the bed of the main river. The river rises, the levees must rise, too—at $50,000,000 a grade foot.

There can be no end to this race, save complete and devastating victory for Old Man River. After he had overwhelmed the levees in 1927, a compromise was

struck. The levees were raised again but in addition a series of "fuse plug" levees were built, which, when pressure became too severe, allowed the river to break through into **designated areas** of the flood plain. The white flag went up. Men have given part of the ancient domain back to the Mississippi. Unless they can hold more of the water in the upper valleys, they may have to give it all back. Levees as a method of protection have reached their limit, and the attack must be shifted.

In January of last year cold winds from the north were not cold enough to drive out warmer Atlantic winds. Winter was checkmated and rain fell in torrents. Some sections of the Ohio basin received half a year's average rainfall in 25 days. Even the primeval continent would have had difficulty caring for such a downpour. The steep bare fields were awash, gullies deepened, rills were swollen to brooks, brooks to little rivers.

A mountain meadow fills like a pond. It overflows, and the surplus roars to the valley below, taking out a bridge as it goes. A mile of state highway is sheared off. A barn swings ponderously on its foundations, settling to starboard. Down from a thousand upland valleys 60 billion tons of water are on their way to the Gulf. The exhausted soil cannot hold it, river walls and levees cannot hold it. Nothing can hold it. The water will come down, and God help any man or beast in its path.

From Pittsburgh to Louisville to Cairo to Memphis, man and beast begin to move, until more than 1,000,000 persons have left their homes. The damage figures cross the half-billion mark. And 500 people are dead of drowning or exposure; 6,000 cattle are overwhelmed at one town alone.

The Ohio takes the roaring funnels of water from the thousand side valleys and rises above the highest levels conceived possible. From normal, it climbs twenty feet to flood stage, and then an incredible thirty feet **above** flood stage. Flood stage can be handled, and even ten feet above. But when the level swells higher there is nothing to do but run and pray.

The gauge climbs to a fantastic 80 feet at Cincinnati. One-sixth of the city is under water; power, heat, light, water supply, gas, disappear. Louisville, lying lower, is three-quarters inundated, and more than 200 people are dead. Paducah, Kentucky, is completely evacuated. At Cairo, only able-bodied men remain, adding a desparate three feet to the 60-foot levee. Sand boils gush from the pressure of water under the streets. The normal flow of the Ohio at Cairo is 300,000 cubic feet per second. A hefty flood registers 1,500,000. Now the gauges show 3,000,000 cubic feet!

A fuse plug levee is blown out, inundating 130,000 acres of flood plain where 5,000 people live. They must flee for their lives, but the pressure at Cairo eases a little. Oil tanks explode at Cincinnati and the swollen river turns to fire. Accumulated gas from wrecked mains detonates in Louisville, killing and injuring a number of people. Fire breaks out, but fire-fighting equipment is under water. The horror of a burning house becomes the greater horror of a fire at sea.

The United States Public Health Service reported 94 cities and towns—total population 1,402,000—with water supplies out of commission. Tens of thousands of private wells inundated with the polluted flood! Incipient epidemics of typhoid, dysentery, influenza, and pneumonia, appearing at a score of points. With bitter irony, thousands go thirsty in the middle of a torrent. Even as man in his folly has torn away the cover of forest, he has permitted sewage, factory refuse, and mine drainage to poison his rivers, until it is flirting with death to drink from them.

The muck and filth as the waters recede is indescribable. The tops of 28,000 private automobiles slowly emerge on the streets of Louisville, and will cost an average of $100 per car to be put into operation. It will take six months to mop up after the deluge.

Ten months earlier, in March, 1936, the golden triangle of Pittsburgh was under water. The cost of this flood was placed at $200,000,000. To the east and north, the Merrimack, Connecticut, Delaware, Susquehanna, and Potomac rivers all went wild. An army of men was piling sandbags to save public buildings at Washington, where the Potomac was up 26 feet.

J. B. Kincer, of the Weather Bureau, estimates that for the years 1903 to 1935 the annual flood damage the country over was $40,000,000. In 1927 the lower Mississippi poured through 13 crevasses in the main line levees, inundated 23,000 square miles of flood plain, drove 750,000 from their homes, killed 246, and did $300,000,000 of damage. Losses on the Missouri, Red, and Arkansas rivers are very heavy and regular. The Rio Grande, now choked with silt, is an increasingly ugly customer.

If levees cannot save us, what can? To answer this question, we must go back to fundamentals. Before America was discovered, nature had carefully laid down the top layer of soil, called humus, at the rate of something like one inch every 500 years. Humus is the most precious of all man's resources. It is a complex chemical substance made up of pulverized rock ground by water, ice, and frost; of decaying vegetation, earthworms, and bacteria. It is a great absorber of water. A pound of sand will absorb only about a quarter of a pound of water; a pound of humus will absorb twice its own weight. This girdle of humus thrown over the continents of the world, seldom more than a few inches thick, is the source of all land life. If it goes, life goes. Every plant, every insect, every animal, every man must disappear. Nature, having worked so hard to provide the fragile layer, is not disposed to waste it. She hoards it carefully by many clever devices. Water must drench it if life is to sprout, **but water must not carry the humus away.**

Under primeval conditions, grasses, herbs, shrubs, trees, rotting logs, pebbles, roots, check the runoff of rain waters, retard the melting snows of spring. The ground carpet also acts as a filter, allowing the rain to permeate the soil and run into underground storage. Low-lying lands become swamps and marshes; pockets and depressions become ponds and lakes, and so provide more natural reservoirs to check the runoff. The marshes, meanwhile, are alive with wild fowl; the lakes and clear-running streams swarm with fish. Trees and grasses develop the hardiest species; animal life is at maximum vitality. Nature is in balance. Dry cycles swing to wet and back again, but the system of natural reservoirs keep flood crests down and eases over the dry periods.

Along comes the impetuous white man. He drives out the Indian, who has respected Nature. He cuts down the forest to clear the land for crops. If the great trees do not fall fast enough before the ax, he burns them down. He plows the sod of the natural grasslands, or he herds too many cattle or sheep on the sod and ruins the cover by overgrazing. He drains the marshes, swamps, ponds for crop lands, often to find that the underlying soil is useless for agriculture. In arid areas, like the Central Valley of California, he sinks huge pumps into the artesian basins and rapidly exhausts the underground waters. And while he works he slaughters our wild life.

Presently the precious layer of humus is being washed away by sheet erosion, scratched away by finger erosion, torn away by gully erosion. Three billion

If 1938's crops have created new needs for capital for you

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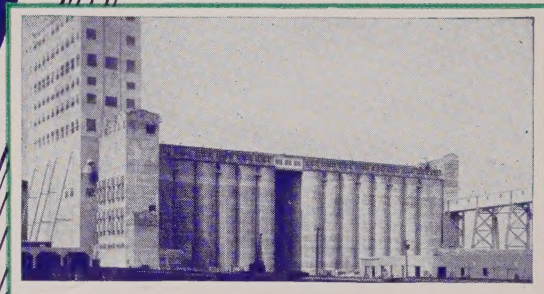
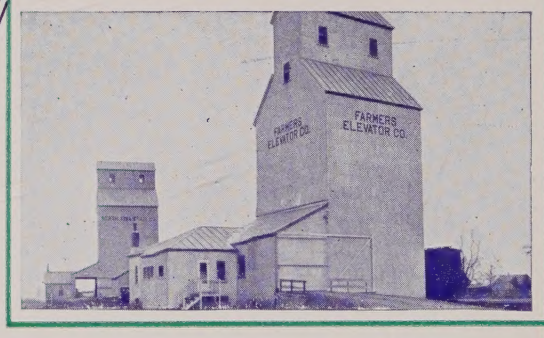
FIELD WAREHOUSING

by DOUGLAS-GUARDIAN





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tons of rich soil are carried to the oceans and the Gulf of Mexico every year. It would take a train of freight cars 475,000 miles long, a train which could girdle the equator 19 times, to haul this stupendous cargo.

Already more than 300,000,000 acres of good farm land have been completely devastated or seriously damaged by water erosion. The very skin of America is bleeding away to the sea. Out in the dust bowl, wind erosion has brought another 100,000,000 acres close to ruin. Wind erosion is the direct result of overgrazing and of plowing up the Great Plains.

We needed land cleared for crops—did we not?—lumber to build our houses; grass on which to feed our cattle; fish and game to eat? We did. But was it necessary to level the forest, plow the plains, destroy the grass, kill the game, befoul the waters, so mercilessly?

Every qualified student of conservation replies with a flat **"No!"** The rate of destruction has been all out of proportion to the benefits received. We thought we had a continent so rich, so boundless, that conservation was a waste of time. What if a forest was gutted here or a field gullied there? The great open spaces lay beyond. Move on, friend move on! In the covered wagon, we moved on and on until we hit the Pacific. That was the end. The frontier closed in 1900.

And how long will Nature stand the drain? It seems to me that we have the answer in these 300,000,000 acres of ruined land, in the three billion tons of top soil sliding into the ocean every year, in the cumulative horror of dust storms, in the enlarging toll of drought, in the underground water table which drops and drops as the wells go dry and the ponds disappear, in the serious increase in insect pests, in the ten million Americans now living on land too exhausted to provide a living, and in the mounting ferocity of flood. Our continent has been a patient one, rewarding brutal assaults with higher living standards for 300 years. At last, her patience is gone. She can endure it no longer. If America is to continue to be our homeland, we must turn from our riotous, heedless ways, and come to terms with nature.

Come and stand beside me on this hillside. Bring your raincoat for a heavy shower is approaching. We will take our position at an opening in a stone wall which divides a grove of trees from a plowed cornfield. The furrows in the field run up and down the slope, as is the usual practice. The rain comes in torrents; button your coat snugly. Here under the trees tiny pools are forming, every twig and pebble is glistening wet, but, rain hard as it may, we see that the water sinks into the ground and, though the slop is steep, little or none goes downhill.

Now let us cross over to the cornfield. It has been dry for a week and the thirsty earth drinks in the rain. But not for long. See—here a little trickle begins to run between the furrows . . . another trickle, and another one. Why, all the furrows are alive with muddy water! They are turning into brooks. That creek below is soon to receive a large addition from this field.

What has happened? Let us follow with care the experts who have studied this comparison scientifically, for we are standing close to the heart of the story of excessive flood and drought. Three things have held the water on the forested hillside: First, the litter itself—the twigs and leaves and pebbles on the forest floor—has absorbed the water. Second, the humus soil under the litter has drunk the water like a sponge. Third, and perhaps most important of all, the litter has acted as a filter and kept the rain water relatively clean, so that it does not muddy and clog the pores of the soil. A large fraction of the total rainfall has percolated through the soil into storage deep underground.

Now, what has happened in the cornfield? There is no litter to hold the rain. The humus, after excessive cropping, is not so deep as in the forest and cannot absorb so much water. Worst of all, the rain quickly muddies as it strikes the bare earth, and a thin, watertight **film** is formed which seals the pores of the soil, so that water cannot get through into underground storage. Naturally, it must tumble downhill, taking top soil as it goes, carrying silt to dams and cities and river-bottoms a thousand miles below.

If, instead of a plowed field, we had chosen a hillside where a forest fire had denuded the slope, again we should have seen the rainfall rushing downhill. But, if we had stood on a field of thick native grass, we should have found rainwater held almost as well as in the living forest. Dr. F. B. Howe, Professor of Soils at Cornell University, measured the runoff of rain on an acre of cornland during one growing season, compared with an acre of meadow. The plowed acre showed an excess runoff of 127,000 gallons. The grass he found to be 65 times more efficient in preventing erosion, and five times as effective in holding water on and in the land.

Forest and grass hold the water. A drought is lack of water. If the water has coasted to the ocean, it is not on hand to mitigate the drought. If it is still in the soil or stored underground, it is on hand, and the drought will be correspondingly less severe. This is Nature's way of maintaining the vitality of plants and animals in dry periods. She stores the water in artesian basins which feed springs, brooks, ponds, when rainfall is scanty. Under primeval conditions the flood peak in the spring was, we will say, 70; low water in August, 30. Now man destroys the natural reservoirs. The flood peak rises to 90, and low water sinks to 10. A peak of 70 is a brisk spring freshet, a peak of 90 a disastrous flood. A low of 30 marks an uncomfortable dry spell, a low of 10 a serious drought.

The floods of 1936 and 1937, according to Hugh H. Bennett, of the Soil Conservation Service, are the worst on record because there is less porosity in the soil than ever before, fewer roots, steeper tilled slopes. As bottom lands are ruined by erosion and leaching, fields are pushed higher into the mountains. In some areas as much as 85 percent of rainfall runs off immediately—a killing proportion.

Has the time come when we **must** control floods or get ready to abandon large sections of America? The principles of control are clear. They can be formulated directly from what has been said above.

FIRST: Levees, channel dredging, river walls, help to protect people and property against flood, but do nothing about the volume of flood water itself. They **steer** a flood but do not control it. The bursting point of the levee system in the Mississippi has obviously been reached. Levees must be maintained, of course, and in addition large areas of flood plain must be cleared of permanent habitation and restored to Old Man River.

SECOND: It is the last 20 per cent of the flood crest which in any river does 95 per cent of the damage. If this can be controlled we need not worry greatly about ordinary high water—the 70-30 ratio referred to earlier. It is the 90-10 which wrecks us, both in time of flood and in time of drought.

THIRD: The best and cheapest way to lower flood crests is to let Nature store the surplus in the soil and in the pond, marsh, and artesian basin. This is the method she has pursued for thouands of years, and it does not require costly dams

and engineering works. Every individual farmer and rural landowner can help, to the everlasting benefit not only of his country but of himself.

Here, for instance, is a program advocated for a group of farmers in Iowa: Let all tracts having a slope of more than 20 per cent be seeded down to hay or pasture. Ultimately these slopes should be planted with seedling trees and allowed to go back to forest. Slopes between 10 and 20 per cent should be planted in strips of alternate grass and cultivated crop, the grass strips to run with the contours of the land. Thus, water sliding from the cornland is absorbed by strip after strip of grass, acting as a banded series of dams. Plowing along the contours, rather than up and down the slope, should be practiced on all sloped fields. Where erosion has produced gullies, little check dams of stone, cement, timber, or plain rubbish should be built, and the sides of the gully planted to fast-growing grass, vine or tree. Finally, water should be held in swamp and marsh wherever feasible.

What is best for Iowa cornlands is not necessarily best for other regions, but the same general principles hold.

FOURTH: The next best method is to hold the water in man-made reservoirs. There are two kinds: great engineering works like Boulder Dam on the big rivers; little ponds which the farmer can construct on his own land, useful not only for flood control, but for supplying crops and animals in the dry season. A thousand little ponds will hold back as much water as one great dam, with no issues of bonds, no mountains of cement, no costly upkeep.

Wherever possible and so far as possible, the control of "little waters" should be instituted, putting the responsibility up to the individual farmer. He will be grateful for the reservoir behind the barn when his cattle are bellowing with thirst and his crops are in danger of burning up. Where such control is not feasible or adequate, then big dams must be built farther down. It is usually better, however, to have them on the tributaries than on the main stem.

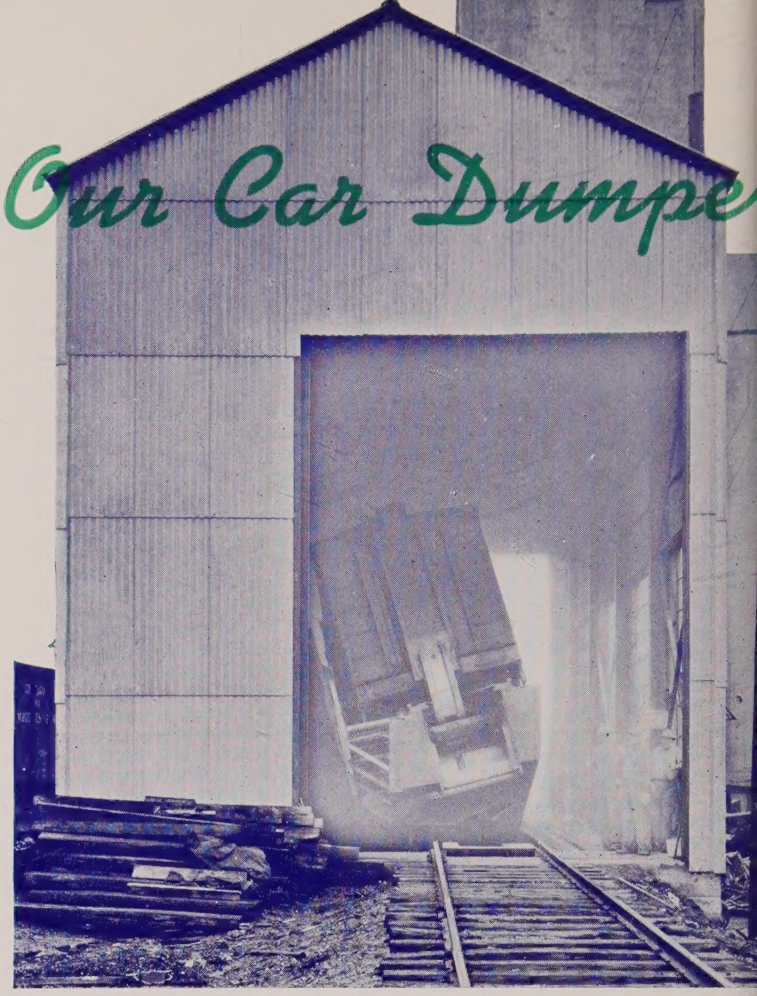
FIFTH: Finally, we must never forget that flood control is not something to be done by itself in a vacuum. That has been the trouble with the levee theory. Flood control is only part of a wider control which aims to restore the equilibrium of Nature, and locks into drought, dust storm, erosion, stream pollution, siltage, overgrazing, and all the other factors in Nature's balance.

We can hold flood crests down on any river, anywhere, if we will first find out what Nature demands, and then work with her. If she demands action which does not follow state lines, we shall have to cease thinking in terms of states and begin to think in terms of regions and watersheds. If she demands action which does not always jibe with legal rules about property and "due process," we shall have to change the rules. **The American land must be restored to vitality and balance.** This must be the axiom of all our strategy. When we achieve this goal, we shall no longer cower as slaves of the flood. The flood will have met its master. ★

WE MOVED TO 41st FLOOR ANYHOW

Hope the world is treating you right and that "GRAIN" is on the way up and up. I enjoy the magazine very much. — Frank A. Peterson, Norris Grain Company, Baltimore, Md.

Our Car Dumper



I have had a lot of satisfaction operating our car unloader at Milwaukee and it is just as much a satisfaction to have been invited to tell you about it.

I am no graduate mechanical engineer with a couple of degrees after my name so I won't dwell on the mechanical details of dumper construction and operation, *but* I do know that our dumper works and has been working for nearly eight years. As I have been in charge of unloading operations during this period, I know a lot about the cost of operation, maintenance expense and general convenience plus the many savings that have been experienced, and I believe that it is this question of savings in which you would be primarily interested.

HARRY THOMS

Let me say something of our installation at Milwaukee. We have three 15,000 bushel receiving legs, —one for each row of shovel pits. A car dumper ordinarily requires a 25,000 bushel receiving leg if it is to operate at capacity, so it looked for awhile as though we were going to have to replace one of our existing legs with a big 25,000 bushel leg—if we were to install a car dumper. But we got around that.

...Is Not For Sale

★

By HARRY THOMS
Stratton Grain Company,
Milwaukee, Wis.

★

Move It Down Track

We put the car dumper about 200 feet down the track from the trackshed. The dumper discharges into a 2400 bushel hopper which feeds onto an inclined 48" belt conveyor. This conveyor takes the grain from the dumper pit and conveys it into the track shed. There we have a tripper on this belt, which enables us to discharge the belt into any one of three shovel pits. So, while one of our 15,000 bushel legs is elevating one carload, we are emptying the next car into the second pit which, of course, has its own elevating leg. Then we can move the tripper to the third shovel pit and by the time we have delivered a carload to that point the first pit is empty and we move the tripper back and start all over again.

Thus, our three 15,000 bushel legs give us a total elevating capacity of 45,000 bushels per hour, which is more than the dumper requires. Of course, each carload is completely handled through one shovel pit, elevator and scale.

We were able to make this installation without disturbing our operations in any way because only the conveyor and tripper had to be installed inside the existing track shed. This system has worked out fully as well as anticipated and we are well satisfied with it.

Installation Costs

You will be interested first in the cost of our installation.

This question of cost should be considered from two angles, namely that of the owner who wants to amortize the investment and, second, that of a lessee who must pay 6% on the investment.

We are lessees so are not directly concerned with amortization and you will have to get somebody else to explain about that side of it. We do pay our 6% interest and we make money by it.

Our dumper installation including foundations, dumper house, conveyor, tripper, etc., cost around $60,000 and at 6% that costs us about $3600 a year. At say 10,000 cars a year we pay 36c per car interest.

When we are really hitting the ball, averaging nine cars an hour, we have four men on the job. One operator and a sweeper take care of the dumper while the other two are kept busy operating the car puller, getting cars to and from the dumper house. At 85c an hour these four men represent a labor item of about $3.40 an hour. At nine cars an hour it represents a labor item of 38c per car.

So, 36c for interest plus 38c for labor is 74c per car. We think that is pretty good.

There is no additional power cost because this item is no higher per car for the dumper than for a set of power shovels.

Other Savings

Furthermore, it costs no more per car to maintain a dumper than it does to maintain power shovels. We maintain our car dumper for about 3c per car unloaded. I understand that the manufacturers will agree now to replace all working parts indefinitely at a flat rate of about 2c per car unloaded.

There are other savings. Demurrage for instance; we don't know what demurrage is. We can unload

70 cars in an eight hour shift and, because any of us can operate the dumper, it is easy to put on two or three eight hour shifts. That would give us more than 200 cars a day and they don't come in any faster than that.

In July of 1931 we ran our dumper for 21 days without stopping—except for a few minutes a day to change shifts and give it the grease gun. In these 21 days we took in 4048 cars over the dumper—which averages 8 cars an hour—which means we were generally doing better than 10 cars an hour to make up for losses in time beyond our control such as bad order cars, delays on the scale floor, delays due to changing shifts and greasing, switching cars and other inevitable hold-ups. *But* we got the 4048 cars unloaded in those 21 days and we kept ahead of demurrage charges!

Labor Question

Then, there is the question of grain doors. We rarely break a board—only when they are rotten to begin with or when they are put in place by a country shipper who has nothing but railroad spikes to nail them in with. We probably don't break more than one board in 100 cars and that saves good money.

Let's look at the labor question. It may be said that a dumper puts a lot of men out of work and that's a bad theory in times like these. But if you have ever taken your turn at the handles of a power shovel in a car that has been standing in the summer sun, with the dust clinging to the sweat all over you, not to mention the dust that you breath—respirator or not, and a respirator doesn't cover your eyes—wading through deep grain before that rope pulls tight, trying to keep from getting caught by the rope hour after hour, *then* you won't blame the dumper for keeping men out of this job.

There are plenty of talks dealing with safety and working conditions and no superintendent will argue that a shoveller has a safe, clean job. There is very little that you can do about this condition—but a dumper is certainly one answer.

Properly located dust collectors in the dumper house will eliminate all objectionable dust. Even without dust collectors, there is usually a draft through the dumper house that takes away the worst of it.

Then, there is the question of labor turn-over and our dumper has helped us more here than in any other way. We don't hire and fire shovellers according to the seasonal movements of grain because our regular force—with the dumper—can handle what comes. We are often through unloading by 11 o'clock, generally by noon, having handled perhaps 30 or 40 cars. With the unloading out of the way, our men go about their other duties. We don't have unemployed shovellers waiting around for a job with all the red tape of Social Security. Workmen, Compensation, etc., etc., whenever they have to be hired or laid off. Taking on new men is costly business. We used to find that in the summer we had to take on and lay off 100 men before we found three who were really good.

Spot Plugged Cars Quickly

When we first put in our dumper we used to get a lot of cars which had damp or otherwise bad grain on the bottom—and we think that some of these shippers figured that we would never see it unloading with a dumper. But we never miss! The dry, heavy grain comes pouring off the top and exposes whatever may be underneath—and we find it every time.

So not only has our dumper eliminated the worst job in the elevator, solved our labor turnover problem

EVENTUALLY, — THE SOONER THE BETTER

Eventually the grain handling industry must advertise its wares—in conjunction with producers—to prospective consumers. The how and why are not so simple, but competition of less nourishing goods will force the issue and the sooner it is started the better.

The daily press carries blaring headlines—" 'Eat More Meat' Campaign Helps Live Stock Men!" Orange growers and others, ad infinitum, are daily cutting in with threatening results.

The grain man counters with the thought that processors profit directly from any advertising campaign promoting the consumption of grains, however only in a few instances is consumption showing any encouraging gains.

Six years ago the Elevator Superintendents listened to Bennett Chapple, able vice president of the American Rolling Mill Company of Middletown, Ohio, manufacturers of ARMCO steel, outline a comprehensive and painless plan in full detail. We modestly suggest a similar talk before the coming annual convention of the Grain & Feed Dealers National Association in Toronto, Ontario, this September.

Wheat-Flour Consumption Down

Wheat-flour production in April totaled 7,834,000 barrels, representing a somewhat greater-than-seasonal decline from March. Statistics for the past two seasons are given, in barrels, below:

	1937-38	1936-37
July	8,415,000	9,416,000
August	8,678,000	9,148,000
September	9,234,000	8,708,000
October	9,446,000	9,120,000
November	8,698,000	8,019,000
December	8,168,000	8,216,000
January	8,116,000	8,180,000
February	7,572,000	7,536,000
March	8,600,000	8,402,000
April	7,834,000	8,340,000

and speeded up our operations, but it has at the same time saved us money.

I have said enough and I can sum it all up in this way:—after eight years of automatic unloading, we have a lot of power shovels which you can buy cheap, but our dumper is *not* for sale.

TRUCKING BUSINESS UP

"Here are three trucks that load regularly at our little elevator," writes Frank A. Peterson, Superintendent of Norris Grain Company's Elevator at Baltimore. "Practically all of them bring lumber up from North Carolina points for delivery in Washington, D. C., and Baltimore, and come to the elevators here and get a load of wheat to take back to the mills. We don't bother with **any** trucks that come along, but deal only with established trucking concerns that are in the business to stay."

"The truck drivers are a happy lot despite the hard life they lead. Many of them drive alone continuously for two days and nights . . . They'll average 12,000 feet of lumber and 24,000 pounds of grain — which we can load in 7 minutes.

"Was down on the eastern shore earlier this month and the wheat fields present a beautiful sight. Looks like a big crop in the making, although farmers are complaining a bit about rust in oats."

IMPORTANT APPROACHING DATES

September 26-27. Grain & Feed Dealers National Association, Royal York Hotel, Toronto, Ont.

October 10-14. National Safety Council, Stevens Hotel, Chicago.

April 2-5. Society of Grain Elevator Superintendents, Milwaukee, Wis.

May 8-12. National Fire Protection Association, Chicago.

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SAFETY CONTESTANTS MOUNTING

By CLARENCE W. TURNING, Duluth

The Safety Contest Committee is pleased to announce that the number of contestants entering the Superintendents' Society race for the Safety Cups is mounting almost daily. Kansas City is doing especially good work and we would not be surprised if they usurped Fort William-Port Arthurs' coveted position of last year when they entered the contest 100% strong. They have had a very busy season in Kansas City but still they are taking time out to work up interest in Accident Prevention. (C'mon all you other Chapters—let's have a little competition! That goes for those outside of the larger markets, too!!)

All the winners of last years' cups, and most of those receiving awards are entered, as well as a lot of new plants. All this sums up to spell greater interest, keener competition and wider accomplishments.

Final Manual Draft

The Safety Manual the Committee has written is in its final draft and will soon be released to all contestants after obtaining the endorsement of the Manager-Owner group.

The fee charged those entering the Contest this year is $10, practically all of which is returned in posters, circulars and other worth-while aids. There is still a few weeks left in which to enter YOUR plant, B-U-T why delay, enter T-O-D-A-Y!

ALL OUT FOR TORONTO MEETING

Says JIM MACKENZIE of
Three Rivers (Que.) Grain & Elevator Company

The Grain & Feed Dealers National Association is holding its annual convention at the Royal York Hotel, Toronto, Ont., September 26-27 (they took a leaf out of the Superintendent's Society book) and I think a great many of the Superintendents will accompany their Managers from that section of the Continent. September promises to be a very busy month for the Eastern elevators and it may be more desirable to get a delegation to Montreal or Toronto in the winter time to start a Chapter rather than now, but ask all the Supers within convenient travel area to express their ideas by return mail.

JIM MACKENZIE

★

FOG NOZZLE, DRY ICE SQUELCH BLAZE

Says H. J. ALDRICH, Secretary
Spencer Kellogg & Sons, Buffalo

Regarding the fire in our soybean elevator, the special fog nozzles referred to are slowly being adopted by fire departments throughout the country. They simply are a spray nozzle.

But this was not the determining factor in putting out our recently reported fire. As the soybean meal was let out of the tank and came in contact with the air there immediately was a blaze. This was subdued with the fog (or spray) nozzle. But the real answer in putting out the fire was the use of dry ice and getting the tank emptied. Of course water could not be sprayed inside the tank for fear of an explosion, but after the meal was drawn out of the tank it was a very easy matter to quench the blazing meal.

★

HALF DAY AVERAGE LOSS

A survey of a cross-section of employees shows that 352, 591 workers lost 208,648 days of work due to industrial injury or approximately one-half day per man per year, reports the National Association of Manufacturers. Such a loss has a tremendous effect on wages and production.

Despite the widespread action to reduce employee injury and illness, preliminary studies show that the smaller American industrial units—which account for one-quarter of the industrial population—have fallen behind in giving such care.

GRAINS' FOUL AIR

By Jack Waterbury,
Stratton Grain Company, Chicago

Authorities on safe practices seem to agree that it is not the carbon monoxide nor the carbon dioxide given off from stored grain that makes it dangerous for a man to enter a bin,—but rather the lack of oxygen.

That being the case then a new device recently introduced for pumping fresh air into manholes should forever eliminate this life-taking hazard.

★

AGRICULTURAL SALES UP

Sales of Agricultural products for the first six months of 1938 were $412,700,000, compared with $319,500,000 for the same period a year ago.

From The West Coast

"Having just seen President Roosevelt off we'll now have plenty of time to show any SGES visitors around these parts," writes George V. Paape, Elevator Superintendent of Spencer Kellogg & Sons' Long Beach (Calif.) plant at Cerritos Channel on Terminal Island.

"These two views of the plant do not single out the elevator, however it is equipped to handle both foreign and domestic grain or seed via either truck, rail, or water.

Our dock is 600 feet long and we use a Fuller Airveyor which travels on rails on the apron of the dock for discharging ship cargoes. This Airveyor has a capacity of 120 tons per hour and discharges on to a conveyor belt which delivers it up to the elevator legs where it is elevated for storage.

The elevator is equipped with two 4000 bushel per hour legs and a 60 ton Fairbanks scale, has eight hopper-bottom tanks 152 x 25 feet and five center tanks, and the workhouse has twenty-seven process bins. As most of the grain and seed in this territory is received by truck we have five truck receiving hoppers and two rail receiving pits.

Come out and look us over!

WANTS MOISTURE MACHINE DATA

I am interested in learning the experiences of other Supers with the various electric moisture testers now on the market, as up to the present we have not been entirely satisfied with the uniformity of the way they check. — Earl R. Evans, Evans Elevator Company, Champaign, Ill.

NEWS FROM THE FRONT

James Auld, Northwestern Malt & Grain Company, recently elected President of the Chicago Chapter of the Superintendents' Society, has been transferred to the Belco Elevator, Minneapolis, for his Company, Hales & Hunter, recent purchasers thereof. William Hales assumes Mr. Auld's responsibilities.

TAILINGS LARGER

The boys up here in Fort William and Port Arthur are busier than usual with the Government audit of grains in the terminals and the cleaning up of tail ends from the country — which, I must say, is larger now than it has been for six months.—M. Frank Beyer, Chapter President.

TOTALLY ENCLOSED

Totally enclosed motors under 1200 RPM are unsatisfactory, according to the concensus of opinion at a recent Chicago Chapter meeting.

HINGED COVERINGS

By E. A. Longenecker, Charles A. Krause Milling Company, Milwaukee

In our other plant we applied the basement belt covering idea suggested by Frank Neilson of Cargill, Inc., only we hinged the device in eight foot lengths from the flat top so that we could get at the belt for any purpose, including cleaning. This idea worked out splendidly.

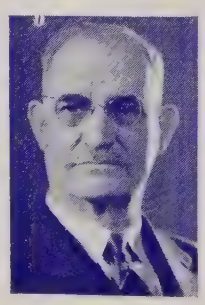
PICNIC CANCELLED

Says PAUL CHRISTENSEN

"The picnic planned for the Minneapolis-Duluth and Fort William-Port Arthur Supers has been cancelled because grain is starting to arrive rather early and fast. We'll hold it later," promises Mr. Christensen, Minneapolis Chapter President.

RECORD RECEIPTS AT KANSAS CITY

Says T. C. MANNING of Uhlmann Grain Company



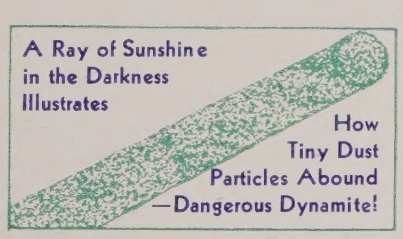
The grain rush here broke all records of receipts on this market from July 5th to 17th — and have we all been busy.

At the last Chapter meeting quite a number of the Supers present indicated they were going to enter their plants in the Second Safety Contest—like our Company has already done.

THE UNSEEN *Monster*

LURKING in the atmosphere of every unprotected elevator and mill are **MILLIONS** of Dust Particles

Too Small to be detected by the naked eye but a Constant Menace to Life and Property



Write for Information

The **ONLY WAY** to eliminate this Destructive Monster is to remove it by effective dust control installation. Our years of experience is at your service

THE DAY CO.

2938 PILLSBURY AVENUE • MINNEAPOLIS, MINN.

The Day Company of Canada, Ltd., 144 Sherburn St., Winnipeg

Oscar Asked For It

Oscar Olsen asked for accidents of an unusual nature. My assistant foreman at the Minnesota, relates Bill Coufield, stepped into a loop in the car puller rope and was drawn up into the car shovel shaft. He lost his leg.

My oiler had heart failure, although he was reported to have been indulging too freely the night before, and fell down the stair well shaft. The combination killed him.

We were handling feedstuffs—which sticks in bins—and had provided a 12-inch belt for man to descend into bin on the end of a safety rope. Further, orders were to have an assistant on hand whenever entering a bin to lower the light, etc., but one of my men, another Super reports, ignored all rules and climbed down the ladder to loosen sticking feedstuffs. He smothered.

One of my men stuck his head between the guard and the safety gate on the freight elevator used in our plant and the impact of the approaching elevator — which only moved 25 feet a minute—was sufficient to behead him.

We covered our set screws on line shafts with sheet metal however the oiler tore them off, was caught by a pertruding set screw and thumped to death.

HOW MUCH LOST IN TURNING?

Records are available, writes Mr. J. H. Davis of the Baltimore & Ohio Railroad, showing that two million bushels of wheat in storage for a period of two years were withdrawn for cooling and airing thirteen times, resulting in a loss equivalent to about 130,000 bushels, or one-half of one percent for each turning.

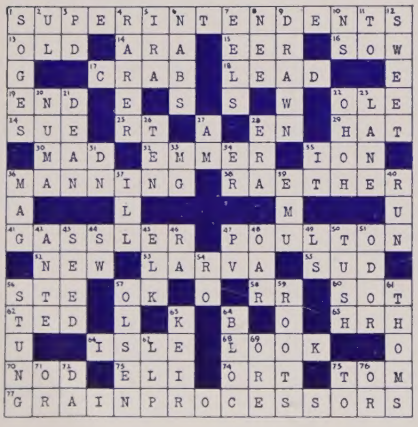
What's your experience?

★

BLAMES CINDERS IN HOPPER BOTTOMS

By Arvid Anderson, Crowell Elevator Company, Omaha

Cinders used to fill in hopper bottoms contain sulphur. This in turn is supposed to react unfavorably on concrete to such an extent as to cause leaking. Surely a better filler can be found.



FEEMSTER WRITES

H. W. Feemster, formerly Superintendent of the Western Maryland Elevator in Baltimore writes: "Although I am no longer an elevator superintendent my whole life has been spent in that line of work and I will never cease going over in my memory my many experiences, some good, some bad, some funny and a good many that took a lot of hard work and heavy thinking to pull out of. Among the greatest and most pleasant is the knowing and associating with the boys in the Society, so please tell them 'hello' for me and that I will follow the activities of the SGES and the elevator business with the greatest interest.

"My eyes are still no better although they are not getting any worse. I have been retired on full railroad pension."

RAETHER MEETS THE BOYS

We had a very fine monthly Chapter meeting out here and Ed Raether, National President, met all the boys, says Arvid Anderson of Crowell Elevator Company's Rock Island Elevator in Council Bluffs.

The Chapter Officers feel that after their busy summer rush is over that we should be able to hold a series of interesting meetings.

★

FINE BUNCH

"I have been expecting you through before now," writes Sherman Wise of Western Terminal Elevator Company, Hutchinson, Kansas, as I would liked to have gone with you to Wichita, Salina and other transit and diversion points in the interests of the SGES. We will be pretty busy now for some time, but perhaps a little later on in the year we will be able to visit around and get a chapter going. Hermann Roennfeldt, formerly of Kansas City, is out here now.

"I often think of the fine bunch of men that I met at the Kansas City convention, and hope to meet with them again next year."

JIM SHAW HONORED

The **Penetanguishene Herald** tells of the feting of our well-known Jim Shaw, Superintendent of the C. P. R. Elevator at Port McNicoll, Ontario. Jim, it seems, has been managing the Penetang baseball team and, to use their words, that "grand old man of North Simcoe league baseball" has just been honored with the presidency of the league. Consequently his own team presented him with a beautiful watch at a banquet in his honor.

JIM SHAW

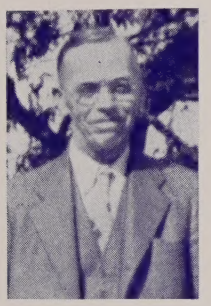
Before baseball, however, operating his grain elevator is first in Jim's heart, and about the time of the Fort William-Port Arthur convention (1937) his elevator was pictured in "GRAIN" with the Royalton alongside unloading 447,330 bushels of barley and wheat — which was accomplished in ten hours. However, his record for unloading, he quickly informs you, is 700,000 bushels in a 20-hour day with his three movable marine legs. And he actually had 6,968,000 bushels in store in his 7,000,000 bushel house three seasons ago, but since the elevator averages 30,000,000 bushels each season (with a top year of 60 million) it must be surprising to those who know him to learn that he didn't have 70,000 over capacity rather than 32,000 under.

Jim says he's going to plug up the Welland Canal so he can get real busy again like he used to be before that ditch was dug.

The Carnegie Medal, second to go to Canada, went to Jim in 1908.

THE Superintendents

The adventurous blood of Viking ancestors coursed strongly in Conrad Johnson's youthful veins as the eight year old Swedish lad set sail for America in 1887. Accompanied by his parents, a sister, and four brothers, the future Super crossed the ocean and half a continent to finally take root in the rolling prairies of Nebraska, the heart of the New World's breadbasket. Today, fifty-one years later, the Johnson family is still amply identified with that breadbasket: Conrad is one of our outstanding superintendents; a brother is an Omaha Grain Exchange inspector; another brother checks weights in the Cedar Rapids Quaker Oats plant, and the two older brothers are farmers.



CONRAD JOHNSON

In 1900, J. F. Harris & Company, hired young Johnson as tonnage clerk in their Burlington elevator. 1904 witnessed his marriage and 1905 saw him promoted to chief grain inspector for the company. Five years later the Merriam & Millard Company offered him the superintendency of their Omaha elevator and Conrad accepted. Followed then sixteen years of happy achievement; the ebb and flow of the crops reflected its tide in the loads and empties at the elevator, and the coming and going of the years saw the development of the Conrad Johnson family, three boys and two girls.

About this time, the Trans-Mississippi Grain Company who now operated the Omaha elevator, were faced with the problem of finding a berth for an older super whose house had burned. Mr. Johnson stepped aside and went to Council Bluffs where he took charge of the Flanley Grain Company elevator. In 1933 the Butler-Welsh Grain Company took over this house and continued Super Johnson in charge, but a consolidation of the firm's Nebraska City organization with that of Council Bluff's brought about a change of conditions early this year which resulted in Mr. Johnson's momentary retirement.

At present, the five acre fruit and garden tract in the north suburbs of Omaha which Super Johnson calls home is prospering under his daily care. As he writes, "This tract overlooks the Missouri river. On a clear day we have a visibility of twenty-five miles down the river and across the Iowa bluffs. It is an ideal setting. In fact, it is a great place for a super to inhale dustless air while taking what I hope is a short vacation."

Cancers?

WATERPROOF & RESTORE

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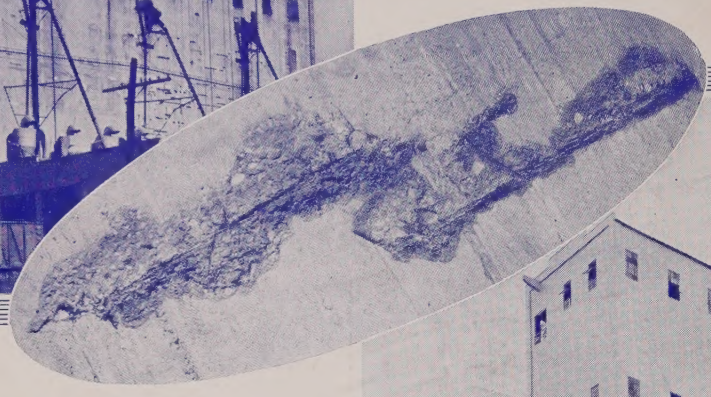
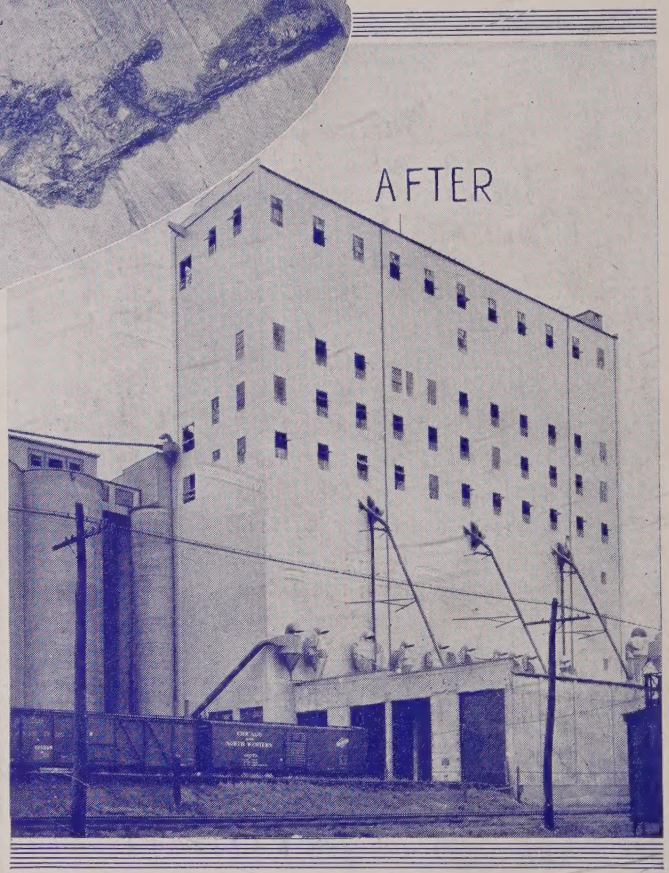
AVOID HIGHER RESTORATION COSTS BEFORE IT'S TOO LATE

Estimates CHEERFULLY GIVEN





Chicago & Northwestern Railway's Kinnickinnic Elevators at Milwaukee, operated by the Stratton Grain Co. This is one of a number of grain elevators that were satisfactorily waterproofed and repaired by

The M. W. KELLOGG CO.

ESTABLISHED 1895

Representative C. L. HANSEN
53 WEST JACKSON BLVD.
CHICAGO, ILLINOIS

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